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THE IMPACT OF APRP ON THE EGYPTIAN AGRICULTURAL INFORMATION SYSTEM

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LIST OF ACRONYMS

ACDI	Agricultural Cooperative Development International
AERI	Agricultural Economic Research Institute
ALCOTEXA	Alexandria Cotton Exporters Association
APAU	Agricultural Policy Analysis Unit
APRP	Agricultural Policy Reform Program
ARC	Agricultural Research Center
ATUT	Agricultural Technology Utilization and Transfer
CAPMAS	Central Agency for Public Mobilization and Statistics
CATGO	Cotton Arbitration and Testing General Organization
CSPP	Cotton Sector Promotion Program
DT2	Development training
EAS	Economic Affairs Sector of MALR
EPIQ	Environmental Policy and Institutional Strengthening IQC
EU	European Union
FSRP	Food Security Research Program
GASC	General Authority for Supplied Commodities
GOE	Government of Egypt
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HC	Holding Company
HEIA	Horticulture Export Improvement Association
HSU	Horticultural Services Unit
IFPRI	International Food Policy Research Institute
IPM	Integrated Pest Management
MALR	Ministry of Agriculture and Land Reclamation
MD	Managing Director
MIP	Market Information Project
MPE	Ministry of Public Enterprise
MEFT	former Ministry of Economy and Foreign Trade (former name of MFT)
MFT	Ministry of Foreign Trade
MPWWR	former Ministry of Public Works and Water Resources (former name of MWRI)
MSHT	Ministry of Supply and Home Trade
MTS	former Ministry of Trade and Supply
MVE	Monitoring, Verification and Evaluation Unit
MWRI	Ministry of Water Resources and Irrigation
PBDAC	Principal Bank for Development and Agricultural Credit
RDI	Reform Design and Implementation Unit
STTA	Short Term Technical Assistance
USAID	United States Agency for International Development
WPAU	Water Policy Advisory Unit
WTO	World Trade Organization

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EXECUTIVE SUMMARY

The principal aim of this study is to describe and analyze the impact of APRP on creating agricultural information. Underlying the analysis is the importance of an information system on economic performance in a liberalized agricultural economy. The primary goal of APRP is to assist the GOE in transforming the Egyptian agricultural economy into a liberalized, open market system. In collaboration with MALR, APRP experts developed a series of activities, both direct and indirect, to improve data generation, to improve the production of information, and to improve its availability to end-users. These activities were wide-ranging and are described and analyzed in some detail in the body of the report. The five most important activities and their impact are summarized here.

Major APRP Interventions

Assessments. The major effort to improve the quality of basic farm-level data arose from assessments by the MVE Unit of the situation for both "old" and "new" lands. Subsequently, a number of activities were carried out that should eventually result in greatly improved area, yield, and production data for many key field crops.

Yield forecasting. After collaborating with MVE, EAS now produces early-season forecasts for cotton and wheat that are accurate, produced on time, and summarized in a useful format. These forecasts will soon be generated for all governorates. However, they are not widely distributed among potential beneficiaries of the data. Timely forecasts could benefit policy makers, traders and exporters by allowing better planning of imports and exports, improved buying strategies, and improved raw materials procurement by processors.

Area estimation. Yield forecasts have their highest value when they are linked to accurate estimates of the area planted to the particular crop. To this end, the MVE Unit collaborated with MALR/EAS in the design of a program to introduce a new, scientifically based method for estimating field crop area. The major summer and winter crops were covered in separate studies. Sampling methods are employed, and area is directly measured using advanced measuring instruments already purchased by MALR, per the recommendations of the first study. When applied, the new techniques will increase the accuracy of production data.

Farm income and costs. The RDI Unit helped MALR to create a set of accurate and representative statistics related to farm costs and returns. The farm, rather than individual crops, was used as the unit of sampling and account. The institutional structure required to sustain this activity appears to be in place. The information thus generated will have an impact on policy decisions, business decisions, and allocative decisions by farmers. However, two aspects of the information generation process are lacking, and should be remedied: the capacity within MALR for analyzing the data; and the capacity to create and disseminate farmer-friendly extension materials.

Predicting the demand for water. This effort involves close coordination between MALR and MWRI, and two elements of the APRP project, RDI and EPIQ. The program completed a pilot phase for three governorates and is to be expanded to all governorates as soon as possible. MALR extension

agents provide estimates of cropping intentions 15 days before planting. The estimates are forwarded to MWRI District Units, where a sophisticated model is applied to forecast the demand for water. The accuracy of the area estimates used in forecasting water requirements is being improved by a parallel activity, involving MVE, to upgrade area estimates by applying sampling and direct measurement techniques. Needless to say, the impact of this information system will be far reaching, indeed, affecting the productivity of every farmer and every feddan of land.

Market news system. APRP undertook many and far ranging efforts to assist the GOE in developing a market information system for use by farmers, traders and processors. MALR developed situation and outlook reports for many important products with the help of RDI, but their content was largely international data, with no link to domestic markets, and the reports contained very little analysis. The story is a little better for cotton, as APRP and CSPP were able to assist ALCOTEXA and CATGO in developing information systems (each has paper publications and a website) that are quite useful for traders, ginners and analysts. That effort fell short of producing information directly useable by farmers. This gap in market information for farmer-decision makers promises to inhibit economic efficiency in the sector as liberalization is completed during the next few years.

Indirectly, APRP also benefited the agricultural information system through the numerous studies carried out to create baselines against which to measure the impact of policy reforms. Most of these studies generated new data and will remain an important source of information for policy analysis far into the future. The GOE will find these to be a wealth of information to help them plan and execute policy reforms long after the APRP project comes to an end.

Overall Impact

Improvements in the quality of basic data, and indeed, introducing data where there were none, over a wide range of information, was overall a remarkable success story. Accurate data are now available for analysts and official decision makers. Further, as it becomes more widely available for use by a broader spectrum of students of the agricultural economy, such as university and government analysts, expatriate analysts, and top decision makers, the information will surely improve the GOE's ability to monitor the impact of policy reforms, identify the remaining policy constraints, and fashion policy reform implementation programs.

Information should, however, be made more widely available, earlier, and in more useable formats. Electronic dissemination systems should be created wherever feasible.

The impact of APRP on data quality and data coverage was significant. It was highly positive, both adding critical data sets and improving the accuracy of existing data. The following weaknesses remain: (1) the limited capacity of MALR for analyzing the data to support policy decisions, (2) limited production and dissemination of market news and extension materials containing economic analysis for use by farmers, traders and processors.

Recommendations

- MALR and the donor agencies should work together to create a true, market information service for farmers, traders and processors. Farmers are an important class of decision makers in the newly liberated agricultural sector. As such they require precise, timely market news on prices and sales, and require extension materials to help them analyze income and cost relationships.

- High priority should be given to solving the institutional problem facing the water demand projection process. The time consuming requirement that area estimates be reviewed at the governorate level by MALR could cause delays and even inaccuracies in the data.

- All market information systems should add domestic price information to the international data being collected and reported.

- MALR should distribute yield forecast information more widely and more quickly.

- MALR should make every effort to increase its analytical capacity, especially in EAS and the Extension Service.

1. INTRODUCTION

1.1 Background

The aim of the Agricultural Policy Reform Program (APRP) is to assist the GOE in transforming the agricultural economy from a centrally managed, controlled system to an open-market system with minimal governmental intervention. In a market system, farmers, private businessmen and consumers collectively and individually allocate resources, basing their choice on knowledge of expected outcomes. Markets are thus information driven. The more complete and accurate the information, the more efficient will be the choices; efficient choices add up to maximizing economic welfare.

In this transformation, not only does the information system have to be better and more comprehensive, it must differ qualitatively from the information system used by central planners. Where a planner requires an inventory of resources and a set of social targets, the individual farmer requires detailed knowledge of his own cost structure, market prices, and expected prices. Where a planner transmits a system of quotas down the line to producers, based on collective estimates of needs, the individual farmer and marketing enterprises in a market system allocate resources among enterprises based on market information.

Policy reform and transformation to a market economy require different data, more data, and better data. In this process, the government's role shifts from direction and control to service to the market economy---given that rules to regulate safety and health concerns, regulation of non-competitive behavior, and alleviation of poverty remain vital governmental roles. One fundamental service must involve the generation and dissemination of market information, sufficiently accurate and comprehensive to insure that individual economic choices will add up to greater efficiency in the use of resources and greater consumer and producer welfare.

APRP directly and indirectly affected the agricultural information system as it carried out its mandate to transform the agricultural economy of Egypt. Direct technical assistance was provided to improve specific data sets or add new data generating activities. Indirectly, the process of policy analysis uncovered gaps in existing data and generated new data in its own right. Obviously, if identifying and then verifying the need for a policy reform were hampered by lack of information, policy makers in the GOE would also be hampered in the future as they continue monitoring and refining policies. A broad range of data requirements was revealed by APRP activities---data required by policy makers and private firms alike.

1.2 Objectives

The aims of the present study are to describe and analyze the impact of APRP on specific data systems, assess improvements in the data systems, identify remaining gaps, and develop recommendations for actions needed for further refinements in the data system.

1.3 Approach

The objectives were addressed by carrying out to the following tasks:

- Describing improvements in the agricultural data system brought about by APRP interventions. Specific, direct interventions included: assessments of data quality; improving short-term yield forecasting and area estimates; establishing a system to collect and utilize data on planting intentions and water requirements; development of statistics for the new lands; estimating farm costs and income; and developing a country-wide market information system. Indirect actions, which influenced data quality and availability, included household surveys, monitoring, baseline studies and policy impact studies.
- Describing other, non-APRP, information system improvements that relate to the overall APRP impact on data systems.
- Analyzing the impact of data improvements, applying measures of quality and availability, assessing the GOE's role, and assessing institutional progress and future requirements.
- Recommending approaches to further improvements in the data system.

1.4 Criteria Applied

Criteria for judging the technical adequacy of the data included: adequacy of coverage (needs of various users versus content); accuracy (quality, error, comparability); and analytical content. Data becomes information, that is, it is useful, if it meets the criteria of form, scope of distribution, and timeliness. Three dimensions of institutional performance were examined in judging the impact of APRP on the data system: 1) the degree of collaboration among GOE institutions and between the GOE and donors, 2) the structural or organizational capacity to carry out the increasingly complex tasks of information generation, and 3) the nature of information-related processes (collection, generation, and dissemination).

1.5 Methods Used

Interviews with key players and decision makers and a critical review of documents constituted the principal methods employed to answer the central question addressed: what was the impact of the APRP on the agricultural information system? Interviews covered three groups:

- Senior officials in the GOE institutions responsible for generating data
- Data users, including analysts, businessmen, and farmers
- Policy makers and staff of funding agencies
- APRP technical advisors

See Annex 4 for a list of individuals interviewed.

APRP, MALR, GTZ, and GOE institutions produced many relevant documents, some of which were reviewed during this study. A list of documents reviewed in this assessment is attached as Annex 3.

1.6 Outline of the Report

Chapter 2 details the activities of APRP towards the development of better information systems for the agricultural sector. Other, parallel activities sponsored by other institutions are discussed in chapter 3. Chapter 4 assesses the impact of APRP on agricultural information systems, and the final chapter presents the study's conclusions and recommendations.

2. INTERVENTIONS BY APRP

Direct interventions were of three related types: assessments of data quality and availability, technical assistance to improve specific data sets, and technical assistance to create new data and information. Related to this were a number of policy benchmarks that directly addressed data and information issues.

But, before proceeding with the descriptive analysis, it should be noted that the scope of interventions related to data improvement and information generation was very broad, much broader than can be adequately treated in this paper. Much technical and institutional work was accomplished. Data over a broad spectrum for the agricultural sector are more accurate, more available, and more useful. Beyond these technical accomplishments there is also unmistakable evidence of institutional sustainability. Collaboration, between the GOE and APRP, within units of MALR, and among donors and MALR, was a model meriting further analysis and future emulation. The collaboration promises to sustain the process long after technical assistance is terminated. And, even more importantly, farmers, traders, officials, and policy makers all are much more acutely aware of the value of information than they were prior to the implementation of APRP. The critical analysis of certain aspects of the five-year APRP program, as it concerns information, that emerges in the following pages is in no way intended to detract from this overall picture of success.

2.1 Assessments of Data Quality and Availability

The MVE Unit conducted formal, in-depth assessments that focused largely on area, yield, production, income, and costs at the farm level. They also carried out two additional assessments related to yield forecasting that will be discussed in chapter 4. The assessments were carried out for both old lands and new lands, as it was clear that data availability and quality differed widely for the two regions. Data generation, processing and dissemination were much less developed with respect to the new lands compared to the old lands---indeed, they still are.

With respect to the old lands (MVE, 1998, Report No. 4), three fundamental conclusions were drawn: (1) area, yield and production data at the village level were fairly good, (2) the farther up the aggregation chain, the less reliable were the data and (3) all data other than area, yield and production, such as income, price and cost estimates, were of very low quality or were non-existent. Data coverage and quality for the basic measures were good at the village level but became distorted as they were aggregated at the district, governorate and national levels. There was some evidence that the data may have been deliberately modified at the higher levels, perhaps to show better output performance than was actually the case. A related conclusion is that much good information is available at the village level, but it is not properly processed and aggregated. The study recommended that this database should be utilized much more fully, toward improving the information system at a fairly low cost.

Other findings of the assessment were: (1) the time lag between generation and publication of the data was inordinately long, (2) data generated by the extension agents must be supplemented by sample surveys and other objective methods, (3) serious gaps exist in the basic data, especially for farm income

related measures such as costs, prices, input/output coefficients and wage rates, and (4) a comprehensive training and equipping program is required at all levels of the system.

The fundamental conclusion of the assessment of new lands data (MVE, 2000, Report No. 12) was that data are incomplete and seriously biased. Information on large and important segments of the farm population was totally lacking, with no coverage of squatters and no coverage of a high proportion of large and small investors. The data are biased because no statistically sound sampling techniques were used. Thus, APRP, in order to carry out its mandate to measure the impact of policy reforms on key economic indicators, in many cases conducted primary sample surveys to generate the required information. Meanwhile, technical assistance efforts are by APRP began to build an acceptable data generating and dissemination capability for the new lands that would endure beyond the tenure of the USAID program. That effort, combined with similar programs being carried out in the old lands, includes objective yield estimation, income, cost and price information, yield forecasting, and area estimates to be used in allocating water supplies in collaboration with the Ministry of Water Resources and Irrigation (MWRI).

In summary, the major findings of the assessment of data quality and availability for the new lands included: (1) lack of a precise definition of new lands, (2) poorly articulated structure of governmental organizations responsible for serving new lands farmers, (3) poor incentives for extension agents, lack of resources and training, (4) lack of scientifically sound methods of estimation, and (5) inadequate processing and presentation of the data. Key recommendations of the assessment, primarily for MALR, which are at least in part being carried out with the assistance of APRP, were: (1) include information on the class of holder in the agricultural census, (2) establish a national sampling frame, (3) expand the duties of the Sampling Directorate to include collection of area, yield and production cost data in the new lands, (4) integrate data on the Graduates program into regular MALR data collection and dissemination programs and (5) upgrade the skills of all personnel engaged in collecting and processing information on the new lands.

Follow-up by APRP, MALR and GTZ included the "New Lands Statistics Program", currently underway in selected governorates. The program aims to generate, on an annual basis, a full range of data on production, area, and yield, income and costs, and yield forecasting. In other words, through the intervention of APRP, data of the scope and quality already realized in the "old" lands will be produced for the new lands.

2.2 Yield Forecasting

The impact of this major intervention is analyzed in some detail below, in chapter 4. In this section the program will be described and reviewed in general terms. The activity has its roots in the USAID Data Collection and Analysis Project of 1984, where scientifically sound objective yield methods were introduced and initial efforts to establish a forecasting methodology in the MALR were undertaken. The current program for early-season forecasting of yields for cotton benefited from MVE assistance in four governorates in 1998/99. CSPP took over the cotton yield forecasting assistance in 1999 and continues through the present.

Two broad-gauged assessments carried out by MVE, and their very specific recommendations, for both cotton (July 2000, Report No. 13) and wheat (April 2001, Report No. 16), covered survey methods, sample selection procedures, the timing of surveys, options for forecasting models, and institutional capacity building. The findings and recommendations of these assessments amounted to a true blueprint for improving (or initiating) a proper yield forecasting system. For each crop, the MALR followed the recommendations very closely and produced technically reliable forecasts. MALR succeeded in covering 37districts in 11 governorates by June, 2001 (for cotton), and in improving the wheat yield forecasting process in 26 districts in 13 governorates by January, 2001.

There is no doubt that technically the data generated are accurate, are produced on time and are summarized in a useful form. One shortcoming is that the MALR has yet to authorize release of the forecasts to the full range of potential users, on time, preferring to hold the data close in the hands of top officials in the government and a few people in the private sector. Remedying this is one of the key recommendations of the present assessment.

2.3 Crop Area Estimates

Yield forecasts have their highest value, of course, if they are linked to accurate estimates of the area planted to the particular crop. To this end, and within MALR's overall goal of improving area, yield, and production data, MVE did a complete study, including a program for introducing a new, scientifically based methodology for estimating area (MVE Report, forthcoming). Results are promising. Estimation of area for winter crops has been done, too. Sampling methods are employed and area is directly measured using advanced measuring instruments. Particularly interesting is the application of a sampling methodology, interpenetrating subsamples, which promises to greatly reduce sampling bias. A subsample is revisited to double-check the initial field measurements.

The area estimates will increase data accuracy, as the other direct interventions of APRP have already. Accuracy is important for any economic variable, but is doubly so for area estimates. Yield forecasts are useless without accurate area estimates. The methodology being introduced to improve area estimates can complement estimates of planting intentions; these are in turn used to project the demand for water. Further details on the area estimation activities are given in Annex 3.

2.4 Gender-Disaggregated Data

Market liberalization could be affecting women in agriculture in ways that it does not affect men. Land tenure laws may work to the disadvantage of women relative to men. Socially, the interface of women farmers and traders with the market system may be problematic. There is some evidence that privatization affected women more negatively than men in terms of losing employment.

Seeking to test the above propositions, and following USAID's overall policy vis a vis women in development, RDI carried out two gender-related studies in 1999 (Report Nos. 51 and 75). The aim of the benchmark recommended by the studies was to get MALR to disaggregate data by gender and to assess the impact of liberalization and privatization on employment and incomes of women. Also, the data should lead to increased awareness of the need to include women in the development process. One outcome of the study was articulation of a benchmark that required the GOE to publish and

implement a policy that calls for the AERI and EAS to collect and analyze gender-disaggregated data. This was accomplished. A second outcome was a benchmark requiring the GOE to establish a policy on Business Support Centers, with units specifically for women in the rural economy. A total of 19 centers were established earlier, and now are increasingly focused on programming for women.

The disaggregated data will provide policy makers with insights into the impact of market liberalization on women. Some early indicators are as follows: (1) only 5.7 % of Egyptian landowners are women, (2) ownership of livestock and agricultural equipment was of the same order of magnitude, with women owning between 2 and 5 %, (3) women constitute less than 50% of the total rural population, (4) 90 % of women are outside the labor force, and (5) 63 % are illiterate. The staff of MALR is roughly 10 % women. Only 1283 extension officers are women, nationwide, a fact that probably will continue putting women at a disadvantage concerning participation in rural businesses, employment in the rural areas, or farm-related income growth under the new, liberalized policy regime. One encouraging statistic concerns women and agricultural credit through PBDAC. About 242,187 women received an average of LE 2290 in 1998/99. This appears to be a relatively large amount per person, although the number receiving credit seems to reflect the relative number (10 %) of women in the work force.

Efforts at gender disaggregating of data should lead to refinements in women-related development programs. For example, the Project for Women Beneficiaries in the New Lands has 75 centers in seven governorates, established to provide training, extension, medical care, and childcare units. Over 1720 women are trained per year in bread baking, hand made rugs, feed processing, chicken hatcheries, olive processing, food processing, bee keeping and many other activities. Monitoring the impact of these programs on rural inhabitants requires good information according to gender, which is now becoming increasingly available.

2.5 Planting Intentions: Matching Supply and Demand for Water

Development of this data system was a policy benchmark and the recipient of a significant amount of technical assistance from the project. RDI, EPIQ, MVE, MALR, MWRI, and CSPP were all engaged in a coordinated effort to put an information system in place. The system would enable more precise determination of water requirements and timely delivery of water to water-users. Water allocation was a relatively simple matter when the GOE dictated the cropping pattern---water was provided according to a detailed cropping plan. With the gradual liberalization of the sector over the last decade or so, farmers are now free to plant whatever they wish. Hence, there is a need to estimate planting intentions at least two weeks prior to the time water is actually required. About 15 days elapses from the time water is released at the High Dam until it reaches the last irrigation command area in the Delta.

The program, which basically attempts to estimate planting intentions, was originally carried out on a pilot basis in five water command districts in three governorates: Beni Suef, Behera, and Sharkaya (RDI and EPIQ)(EPIQ 2000, Report No. 33). This was followed by an MVE study (MVE 2002, forthcoming) to improve the precision of area estimates. Thus, all three units complemented one another in the overall effort to improve estimates of the demand for water. CSPP worked with these APRP units quite closely and intends to play a major role in the future. The pilot program was expanded to include all water districts in these governorates, and eleven new governorates are being added this year, for a grand total of 64 Districts. Data also must be collected during the growing season

to reflect the changing water requirements when fertilizer is applied, different stages of plant growth, and at harvest time. MALR extension agents collect data from farmers representing the basic irrigation unit (hod). Irrigation district offices aggregate the information to the branch canal level, and from that data the governorate statistical offices develop area maps that are forwarded to the national level.

Computers and modeling programs are used at the governorate level to estimate water requirements, based on the estimated planting intentions. The effort requires a high degree of technical sophistication and cross-institutional coordination and management. Extension agents and MRWI "guides" all require basic training in methods of enumeration and data handling; according to many seasoned observers, they should continue to be given financial incentives to ensure careful implementation of this added task. Computers for the district level were requested and are being delivered, enabling rapid processing of the raw data at the district level in the future.

At the rate the system is developing, it will take several years to cover the whole country, including the new lands. This may be owing to traditionally difficult institutional coordination problems that have often occurred between the two ministries. One can only observe that Egypt may not have years. At present there is a water surplus so misallocation of these abundant supplies perhaps involves minimal loss to the economy. However, the inevitable water scarcity situation, such as occurred in the mid- to late-1980's, could drastically change this picture. Water scarcity, especially at the tail ends of canals, could result in serious economic losses if a complete system for measuring planting intentions and the related demand for water is not in place before the event.

Both technical and institutional issues remain to be resolved before this critical information generating activity that is now national policy will be able to efficiently allocate water among competing regions and crops. The seminal document reporting progress on the benchmark guiding this effort (Tranche IV, C 1.) is Report #33 of EPIQ. It reports that the pilot was a success, being completed as scheduled, is enjoying excellent cooperation among all levels of the two ministries, MALR and MWRI, and clearly improving the efficiency of water delivery to the districts involved. It also reported some issues, largely institutional and political, that came to light during implementation of the pilot. The main issue, still unresolved at the top of each ministry, is MALR's insistence that data should go to high-level governorate offices to be refined prior to being forwarded to the responsible MWRI district office. RDI , through its workshop activities, expressed strong disagreement with this policy, citing problems in maintaining the critical timeline and, more importantly, the probability that error could be introduced during the process of refining the data. Responsible managers and their advisors are to address this issue in Phase II, the development of the "National Water Allocation Policy."

Another issue, perhaps more problematic in a political sense, is the need to deal with illegal rice area and the tendency for MALR extension agents not to report more than the "legal" acreage. The obvious implications for error in measurement of water requirements make top-level resolution of the problem of highest priority. Indeed, the whole issue of rice and water policy was highlighted by APRP's efforts to estimate demand for water, joining other policy issues affecting rice production, including the de facto subsidization of water use for rice, tariff protection against rice imports, and the impact of these policies on agricultural resource allocation in general.

GTZ, according to its project proposal for 2001 through 2006, is planning a major program to improve water use efficiency, which will include activities in forecasting water demand. It appears that the initiative, begun by APRP, is viewed as having a high priority by the GOE and technical assistance will continue under GTZ.

2.6 Farm Income Data

Following about three years of effort, primarily by RDI (1999, Report No. 89), this vital information-generating effort now covers 15 governorates, more than half of the country, and almost all of the main agricultural governorates. The activity was initially agreed to under a Tranche IV benchmark. Cost and income data are much more difficult to collect than area, yield, and production data, as input/output coefficients, input prices, product prices, wage rates, and capital costs must all be estimated. Extension agents must be trained to administer a complex questionnaire, and trained economists and statisticians at the national and governorate levels must back them. This process is progressing well, but perhaps should be accelerated, given the importance of the information to decision making at virtually every level.

This activity appears to be technically and institutionally sound. However, there appear to be two major problems. No attempt has been made to extend the results of the surveys back to the farmers and the data have only been published and distributed to a few officials. MALR should be urged do provide extension materials in those governorates that are already being covered by the farm income surveys. Likewise, publishing data for covered governorates will provide analysts with the raw material for analysis and may in fact help improve the collection process itself, as analysts may discover gaps or inconsistencies that can be corrected in future efforts. Gaps in coverage identified so far are failure to include specialized farms (livestock), lack of price information, and lack of current sales data. The Ministry of Supply and Home Trade collects some price data, but it is not clear how comprehensive it might be and whether it is readily available. Also, the wholesale price data appear to have been averaged in some way, making it difficult to apply analysis, as the aggregation method is not clearly reported in the documentation.

It should be noted here, and it will be discussed in the next section, that price information emerges as the most serious gap in market information. Farm level prices and local market prices are vital for farmers for making planting and marketing decisions, for local traders, regional traders, exporters, and processors. Official "support" prices and other interventions still interfere with markets for many important crops, including wheat, cotton, rice and maize, so one might be tempted to suppose that collection of market prices is not a useful enterprise. However, some scope exists for prices to vary from official prices and the markets are gradually becoming free from such interventions. In the future MALR should make every effort to install a system for collecting and disseminating price information to farmers and traders.

2.7 Market Information

A comprehensive assessment of market information availability and needs was carried out in 1997(RDI, Report No. 23) in response to three policy benchmarks, one requiring the assessment and the other two requiring that the GOE initiate a market information system for major agricultural inputs and outputs. The latter benchmarks (I F.2 and II A.8), specified that MARL would create a full range of domestic and international information for these crops and inputs, including international prices, domestic prices, and related economic data. The benchmarks were reported as accomplished in the MVE Benchmark Verification Reports for Tranches No. I and II.

The current review of the status on progress toward developing a market information service revealed that the market information system is not functioning properly at the present time. The situation and outlook efforts of the MALR, designed to disseminate world price and trade information for cotton, wheat, rice, and fertilizer, collect such data from the internet and publish reports weekly and quarterly, but they apparently have not done so on a regular basis during the past two years. Special, periodic situation reports are still published, but not regularly.

More importantly, the outlook reports do not contain information on domestic prices and trade, and the reports are not properly "packaged" for use by extension agents and farmers. Proper packaging would involve analytical content, appropriately simplified tabular material, and examples from markets that are familiar to the average farmer in a particular region. Larger, more sophisticated traders and processors presumably can make good use of the reports as currently designed, but farmers and smaller traders would not find them very useful.

The assessment of market information indicated that two USAID-sponsored market information programs, both focused on fruits and vegetables, were highly successful and were providing regular reports to farmers, traders and exporters. These programs are the Market Information Project (MIP) and the Agricultural Technology Utilization and Transfer project (ATUT). These are described below in chapter 3.

CSPP also carried out an assessment of market news requirements for cotton in 1997, in preparation for carrying out a pilot cotton market information project at the governorate level. They had originally postulated that weekly market news on prices and sales should be collected and disseminated to farmers. Following the field assessment, however, they concluded that such weekly reports were best provided to MALR analysts for monitoring progress in liberalizing the cotton sector, and that only quarterly news would be necessary for use by farmers. The content of the latter was proposed to include:

- Before planting: floor prices, international prices, recommended varieties, seed sources, area controls, and fertilizer sources.
- Before harvest: Will markets be free? Will there be private traders? Are prices fixed? Other marketing rules.
- During the marketing season: Level and trend in international prices. Trends in national sales. Location of traders. Prices and sales differentials by governorate. Total production. Conversion of $/Lb. Into LE/seed kantar.

Thus, GTZ, with help from APRP, implemented a market news service confined to providing quarterly data on international trends and prices, national production, market rules and the like.

However, as noted in chapter 4, below, the role of prices is bound to be significant once the market is completely liberated, so the arguments against collecting weekly price information may evaporate. It would seem that a formal system of market news, involving weekly price and sales reports for both domestic and international markets, would have a high benefit/cost ratio in a fully liberalized agricultural sector. It is doubtful that the so-called informal, word-of-mouth information system would suffice, given the inevitably increasing volatility and complexity of market price behavior as the process of liberalization of the agricultural sector matures.

No attempts were made to collect and disseminate weekly domestic price and quantity data to farmers, nor were such reports provided to analysts and decision makers. Implicit in this joint decision was the assumption that domestic market prices would have little meaning, as the floor price became the "fixed" price. Furthermore, the GTZ concluded that, in any case, the informal market news system, centered on the cooperatives, seemed to be providing market news sufficient for the farmers' needs.

As with cotton, situation and outlook reports are issued by MALR for wheat, maize, rice, and other crops and livestock products. APRP provided some technical assistance to this effort. However, they contain only international data obtained directly from the internet and are published without any attempt to analyze the data or draw inferences to the Egyptian situation. No domestic prices, sales, or stocks data are published for these crops. MALR does not collect such data at the present time. These reports are not packaged in a way that would be useful to farmers, traders, processors, and extension agents.

Finally, the RDI market information needs assessment of 1997 strongly urged collection of domestic market price data and distributing it on a weekly basis to farmers and traders. The recommendation was incorporated into a policy benchmark for Tranche II. The recommendation is judged by this reviewer as being still outstanding, as initial efforts seem to have gradually been abandoned, with little or no progress having been made toward establishing a comprehensive domestic market news system, even for the basic crops.

2.8 Cotton Market Information

The information system for cotton is perhaps the most developed of any field crop, with respect to breadth of coverage. Combined technical assistance efforts of APRP (RDI 2001, Report Nos. 40 and 131) and GTZ (CSPP, 1997, and 2000), working directly with ALCOTEXA and CATGO, developed and disseminated weekly reports on international markets that were comprehensive and timely. However, the reports are only available to ALCOTEXA members (27 exporters) and a list of another 50 or so officials and policy makers. No domestic price information is collected. In 1997, MALR, as reported above, with the help of GTZ, initiated a survey of prices received by producers, but the effort was terminated because the official floor price became a fixed, ceiling price and no trades were made at other than official prices.

The situation may change for the current, 2001/02 marketing season, as there will be over 4000 sales "rings", many of which will be set up by private traders, and the floor price may be equal to, or slightly below the world price. The latter phenomenon owes in part to the recent devaluation of the Egyptian pound. Thus, prices should vary much more over time, and among types and grades, varying certainly more than the margins currently fixed by ALCOTEXA. This suggests that revival of the domestic market and price survey for cotton may be timely. The already functioning situation and outlook reports of MALR and the ALCOTEXA report on international markets could be expanded to include domestic price and sales information, to the benefit particularly of farmers, smaller traders and processors. One important development that owes in part to the efforts of APRP is that the export price information, distributed by ALCOTEXA, reflects free market forces more than in the past, and is much more transparent than it had been in the past. Public awareness of the weekly export price report has heightened, in part due to the efforts of RDI, despite the fact that the report is only distributed to about 27 members and to selected officials. The report is comprehensive, containing detailed prices by type and grade, commitments, shipments, and supply and demand data.

One major Alexandria businessmen and fruit and vegetable exporter, when asked if market news produced by MALR was useful to him, replied: "It is of no benefit at all". The MALR situation and outlook reports, based on data taken from the Internet, apparently do not add anything to the information already available in the ALCOTEXA reports. This large fruit and vegetable grower and exporter had high praise for the quality, timeliness and usefulness of the market information generated by ATUT.

A large cotton exporter observed that domestic market price information is useless because the price to farmers is fixed (floor price), the price to spinners is fixed and the government can interfere with the export price at any time. There is some hope, however, that this situation will improve this marketing season as more private traders are expected to establish "rings" and the floor price is expected to be somewhat below world prices, at least for some grades and types of cotton.

CATGO, a semi-autonomous government organization, supervised by the MSHT, issues a weekly newsletter containing mostly technical information and some economic information for cotton. About 70, high-level people in both the private and public sectors receive the newsletter. Data are very detailed, including exports by grade and type, prices, HVI test results, pressing statistics, volume and location by grade, international trends, and a wide range of historical data. No domestic price data are included. APRP is assisting CATGO in perfecting its dynamic website, which will surely improve the efficiency of processing and disseminating this highly valuable information.

2.9 IFPRI Household Survey

This survey, the primary purpose of which was to help develop food security policies, was also judged to be very useful as a producer baseline against which to measure changes in economic indicators brought about by policy reforms generally (MVE, imp. ass. report no. 8, 1999). Statistics on the cropping pattern, income and expenditures, yields, production, market sales and input/output relationships will indeed serve as an excellent baseline. In particular, labor use, technology change, household expenditures, capital assets and crop yields were measured in great detail and should be measured again in a follow-up survey at the end of the project.

The MVE assessment of the survey data, however, concluded that the data were not suitable for estimating supply and demand elasticity. Other data would have to be developed for this purpose in order to measure farmer response to price changes under the liberalized market regime.

In more general terms, this scientifically designed household survey, covering much detail on relevant economic variables, and representing agriculture and rural economic activity across the entire country, will serve as a gold mine of information for analysts and policy makers as they continue their efforts to identify policy issues and to measure the costs and benefits of policy reforms.

2.10 APRP Assessments and Special Policy Studies

Most of these assessments and special studies required generating primary data through special surveys and structured interviews, as little information in published form about the agricultural sector was readily available. Baseline studies were designed to identify policy barriers to economic efficiency and to provide current measures of industry structure, conduct, and performance, against which to gauge the impact of policy reforms carried out under APRP. The baseline studies (all carried out by MVE) were for rice (Report No. 3), wheat (Report No. 6), cotton (Report No. 5) and fertilizer (Report No. 2). The rice baseline study was updated in 2000 (MVE Report No. 10).

Structural measures included the number of firms; the importance of the private sector; market shares in processing and trade; the role of government enterprises; and policy barriers to free and open competition. Conduct variables included the degree of competition, technical efficiency, ease of entry, the behavior of public enterprises, and trends in export shares. Performance measures included market efficiency and international competitiveness. A full range of agricultural policy issues were addressed.

The Producer Survey (MVE, March 1998, Report No. 6) was another action that generated useful baseline information against which to judge the impact of policy reforms. The study was somewhat limited in coverage, however, addressing only nine policy benchmarks that were directly related to producers. The study included 181 questionnaires, administered in eight governorates. The main findings of the study were: changes in the cropping pattern between 1995/6 and 1996/7, the first year covered by the APRP benchmarks, were precisely measured; factors affecting farmers' decisions were revealed; sources of advice on the cropping pattern were determined; the frequency of use of new cultural practices, including use of de-linted cotton seeds and pest control, was measured; and fertilizer availability and prices were determined. Among the responses relevant to the information system, farmers observed that technical information provided by extension agents was of limited value. They stated that what they really needed more was market information and information on the relative profitability of crops. Other useful information generated by the survey included the pattern of rice marketing, farmer attitudes toward water conservation, and problems with respect to fertilizer purchases.

These and others of the many special studies carried out by the project not only provided information on the impact of current policy changes, they will continue to provide basic information required to further analyze the performance of the agricultural sector. Identifying new policy bottlenecks, adjusting policy implementation to the test of reality in the field, and providing more efficient services to farmers

and other private sector entities will all be done more precisely with the availability of the APRP-produced information.

3. PARALLEL INFORMATION GENERATING ACTIVITIES

3.1 Analytical Unit in MALR

Even if basic agricultural data, including domestic price and marketing data were to be collected, were accurate, comprehensive, and useable, there would still remain the problem of data processing and analysis. An analytical unit was set up by MALR/EAS in 1998 (as a benchmark of tranch II of APRP): The Agricultural Policy Analysis Unit (APAU). The APAU was provided technical assistance by GTZ, whose assistance was largely confined to the cotton sub sector. The Unit produced some reports, including an annual bulletin containing a comprehensive set of cotton-related domestic data (production, marketing and ginning) and international data. They have also published income and cost data for the nine governorates (Gharbia, Sharkia, Ismailia, North Sinai, Assuit, Sohag, Qena, Luxor, and Aswan) currently included in the RDI-sponsored surveys, although there was no attempt to analyze the data or to develop extension materials. GTZ continues to provide some technical assistance for the unit.

Review of the analytical work done thus far by this unit revealed that only rudimentary methods and concepts are being employed. Increasing the technical capability of the unit should have a high priority.

The price, income and cost data generated by MALR in semi-annual surveys, combined with market information that could be generated by a market news system for local markets, would form a powerful data base for producing market news and extension materials for direct dissemination to farmers. A strengthened, upstream analytical unit could do the necessary analyses and produce materials for extension agents. To complete the development of the system, extension agents, statisticians, and economists all need technical training and need to be organized and managed to build the complete collection, analysis, processing, and dissemination system. This will take time and will require a substantial increase in outside technical assistance.

Meanwhile, MALR should initiate, as they agreed to do in the Tranche II benchmark, a market price and sales data collection program for all major field crops: cotton, wheat, rice, maize and selected agricultural inputs. This effort should focus on the major regional markets and should be carried out weekly. Extension agents, following the example of the MIP experience for fruits and vegetables, can be trained in a standardized system of collection, processing and dissemination through the media on a weekly basis.

MALR should also begin training and organizing the APAU to systematically build up its capacity to analyze market information and to produce farmer-friendly reports. The analytical materials can be added to the basic price reporting effort, gradually as it is developed. One of the future, critical tasks of this Unit should be to develop relatively simple analyses of relative costs and returns by crop and to develop materials for distribution to extension agents. Using such materials, extension agents could carry out workshops at critical times during the year (harvest and planting time) to heighten farmer's decision-making ability at these critical decision points.

APAU reports include income and cost data, situation and outlook reports and special studies. The reports tend to be simply tabular presentations of data, with little or no analytical content. The shortcomings of the situation and outlook reports are discussed in the section on market news. Under the Decree forming the unit, its mandate was clearly to provide economic analysis of current policies and to analyze the potential impact of proposed policy reforms. In practice, however, virtually no analysis is being done. If it is, it is not made available to the public. In any case, it is usually of questionable quality. One reason for this is the lack of appropriate training in economics and statistics and the general lack of research experience. Another problem may be a budgetary constraint.

RDI and MVE should make every effort, during the remaining few months of the APRP project, to engage staff of APAU in carrying out studies. They should formally include these analysts in fieldwork and in analysis. Working alongside the local and expatriate experts in the project will sharpen their analytical skills and help them to gain confidence in their capability in economic analysis. In the longer view, USAID should consider developing a formal institution-building technical assistance project aimed at strengthening this analytical unit, in the interest of sustaining policy reforms and their implementation into the future.

3.2 Marketing Extension Department

MALR, in 2000, organized this department to produce marketing information for farmers. Most of its staffhave the equivalent of a master's degree. It is a new department inside the Extension Services Sector with a new mandate, but has already established a track record, primarily in rice market information. They have established 164 extension centers that are devoted to carrying production and marketing information to farmers, primarily through a series of field days. It is apparent that the activities of this department, linked to improved economic analysis in APAU, could be a powerful institution for generating and disseminating market news.

3.3 Marketing Information Project (MIP)

The MIP, originally financed by USAID and implemented by ACDI/VOCA, collects price information from four wholesale markets for fruits and vegetables and disseminates the information daily. It continues until now under MALR funding and management. Reports are distributed daily to the media, providing farmers and traders with valuable information. No market analysis is carried out. Prices are simply reported widely through the media, using standard methods for collecting, processing and tabulating the data. MALR will continue to support the activity, and perhaps use it as a model for expanding domestic market price reporting to other important crops and livestock.

3.5 Agricultural Technology Utilization and Transfer (ATUT)

This USAID-funded project collects and analyzes data for fruits and vegetables for target export markets in the EU and elsewhere. It carries out highly sophisticated market analysis and distributes results directly to their list of exporting producers, most of whom are medium to large, desert growers. Reports are quite narrowly limited to the members of the HEIA group and contain very little information on domestic prices and markets. There is no formal linkage between the MIP project and ATUT, despite the obvious complementarities, and apparently there is no plan to better link these programs in

the interests of serving a wider farm population. There should be a link between the projects, but nothing has been done in this regard.

3.6 Agricultural Census, New Lands

APRP, through early work by MVE, had a substantial impact on the agricultural census of the year 2000. Among the improvements introduced were: adding new lands to the national census for the first time, improving the design of the questionnaires, decentralizing the process by enhancing the capability of governorates and districts to collect and process the data, and shortening the time required to publish the census, from 5-6 years in the past, to less than a year now.

3.7 Publication of Production Data

MALR improved the format of the semi-annual publication, "Agricultural Statistics," increased data coverage, and shortened the time required to release the data from over a year to less than six months. APRP experts assisted MALR in this process on an informal, as requested basis. Distribution of the publication is still too restrictive, with fewer than 600 copies distributed. Coverage could easily be expanded by cutting publishing costs, for example, by printing it in black and white instead of using multiple colors. MALR also makes the area, yield, and production data available on a website.

3.8 DT2

With assistance from the DT2 central training project, MALR staff were trained in yield forecasting for citrus crops. This activity followed the successful program of crop yield forecasting in cotton and wheat started by the MVE Unit and also assisted by GTZ.

4. IMPACT OF FOUR APRP ACTIVITIES ON THE AGRICULTURAL INFORMATION SYSTEM

Four APRP interventions, which were carried out with the explicit purpose of developing agricultural information, are analyzed in this section and the overall impact of improved data on policy analysis and economic performance in the sector is addressed. The four specific interventions were:

- Farm income data
- Forecasting yields
- Crop planting intentions (area estimates) for forecasting water requirements
- Market news

These activities were chosen for more in-depth treatment concerning their impact because the data sets are critical to the proper functioning of a free-market agricultural economy, and APRP invested significant resources to developing the information. Criteria applied in judging the degree of success achieved in each of the interventions include:

1. Technical

- Coverage
- Accuracy
- Analytical content

2. Usefulness to end-users

- Form
- Availability/Scope of distribution

3. Institutional capacity

- Collaboration
- Structure
- Processes

4.1 Farm Income Data

This information area was the biggest gap in the official MALR statistics, and closing the gap was of the highest priority in terms of applying APRP resources. Beginning with a pilot effort in three districts in two governorates (RDI, 1999, Report No. 89), the activity, with the full policy backing of the GOE, will be expanded to 15 governorates (including much of the new lands) during the 2001/02 crop season.

The benefits of generating farm income data are obvious. Farmers, in a liberal agricultural economy, being free to cultivate what they would, must understand the relative profitability of alternative farm

enterprises, and act accordingly. Hence, current price/cost information, especially at harvest time and just prior to planting season, is an essential ingredient of the farmer's decision matrix. Moreover, the farmer is normally not fully capable of analyzing his or her overall budgetary situation from an economic perspective, although most farmers, even the smallest, routinely calculate their own financial status. Help from MALR experts in interpreting costs and returns data, and extending the results in useable form back to the farmers therefore should have a high priority.

To this end, one of the APRP-sponsored actions was an intensive training workshop in preparation for the data gathering campaign in Dakahlia, carried out this September. The program of training covered the four pillars of the MALR/EAS data improvement program: (1) use of sampling rather than subjective observation by extension personnel, (2) objective yield estimates, (3) pre-harvest yield forecasting, and (4) estimating farm income and costs. MALR, with technical assistance from APRP is systematically developing the technical and institutional capacity required.

During the workshop, both the EAS Director, and the RDI Chief of Party and the MVE representative underlined the importance of comprehensive, accurate information. They likened information as an input into farm production just as important as fertilizer, new seeds, or labor. Another notable observation concerning the workshop was the obviously close technical and managerial coordination among headquarters staff (the Sampling Unit of EAS), governorate statistics units, and the technical advisors. There was a high level of enthusiasm for the new sampling methodology, thorough technical and managerial guidance from headquarters, and an easy, productive advisory role for The APRP team.

A systematic analysis of the income and cost generating activity is summarized in Table 1. Several conclusions can be drawn in terms of the three criteria used to judge the impact of APRP.
First, income and cost data will now be available for 15 governorates, where no accurate information was collected before. The new data is of excellent quality, being based on a scientifically designed sample and processed with the most advanced methods of data handling available. The basic data are accurate and unbiased.

Second, the data are available to decision makers and policy analysts. Unfortunately, no system is in place to feed the information back to private decision makers, the farmers, traders and other marketing agents, through the extension system.

Third, income and cost estimates, and gross returns by crop enterprise and crop rotation, are certain to be very helpful to both farmers and policy makers, and will increase the efficiency of resource allocation in agriculture under the liberalized market system.

Fourth, the institutional capacity for collecting and processing the information is in place from farm (village) to district to governorate to the national level. Within a year or two all governorates will be covered and useable national statistics on income and costs will be readily available for use by policy makers and researchers. The institutional arrangements for producing the data are in place.

Fifth, the new system collects information on asset values, providing a much needed new dimension to information for use by policy analysts.

Three gaps remain in the institutional structure: (1) capacity to analyze the data to produce policy recommendations, (2) a distribution system that would make the data available to a wider range of users, including private traders, university researchers and government officials, and make the data user-friendly, such as through a website or on CD ROM. Hard copy distribution to only about 600 users after a delay of at least six months is not a very high level of performance. (3) There is no capacity to provide useful information on costs and returns to the farmers themselves, who under the liberalized market economy are the key decision makers. This would require developing a training program for extension agents, activating the APAU unit of EAS, strengthening the Marketing Extension Unit, and forging links among these entities.

Policy makers also have a vital need for such data to monitor the impact of liberalization of markets on the welfare of farmers, to detect the existence of non-competitive conditions in Egyptian agriculture, propose technical and economic remedies for such situations, and provide sound advice to farmers. Analysis of this important database by MALR/EAS has been slow in developing, ostensibly because the data are still incomplete in terms of geographic coverage. There is, however, no clear reason to delay such analysis. Good economic information that would assist policy makers can surely be generated using the data already available for 15 of the 26 governorates. This information will become even more valuable when a time series of such data is available for all major agricultural governorates. As 26 is recommended below, use of the data for economic extension packages, to be delivered to farmers, should receive immediate priority by MALR and APRP. Farmers need data showing the geographic and temporal variance in costs and returns, not simply one "cost of production" or one "farm income."

Table 4-1: APRP's Impact on Farm Income Data

Criteria	Impact
Technical: • Coverage	Income and cost data are now available for 15 governorates.
• Accuracy	Data are of the highest possible quality, being based on scientifically sound methods.
• Analytical Content	In addition to costs of production, MALR now collects data on asset values, gross revenue, and generates budget analyses. Analytical capacity is still weak.
Usefulness to end-users: • Availability	Data are available to officials and analysts. MALR, with a small additional effort, could extend the results back to farmers.
• Form	Is maintained up the line and comparability is assured over space and time. However, data are not available in a form usable by farmers.
Institutional capacity: • Collaboration	Institutional capacity for data collection is adequate.
• Structure	Units of MALR at different levels work well together.
• Process	The process for collecting data us accepted, but the process for disseminating data is inadequate.

4.2 Yield Forecasting

Within-season yield forecasts have been added to the data generation capability of the MALR/EAS through APRP activities for cotton and wheat (MVE 2000, Report No. 13 and MVE 2001, Report No. 16). Yield estimates, per se, for the full range of crops, have been made scientifically through application of crop cutting techniques and sampling methods since 1955. It should be noted that both subjective estimates by extension agents and estimates based on sampling methodology continue to be carried out. The results from both efforts are reported to national headquarters, at which point high-level officials make a judgment as to which estimate is the most accurate. Obviously, this dual system is costly and contributes to confusion about the official yield estimates. A decision should be made to adopt the sampling estimates, with appropriate effort to minimize sampling error and non-sampling error, and greatly reduce the amount of resources devoted to the subjective yield estimates carried out

by the extension agents. If this would not be politically feasible, then extension agents should receive more training in how to make objective yield estimates. It appears to be an unnecessary and costly duplication, and in any case, as will be discussed later in this report, extension agents should turn their energies to transmitting economic information to the farmers.

Yield forecasts, as with the other major data generating activities, were improved under the APRP project (Table 2), insofar as collection, processing, and handling is concerned. Good data, in a timely manner, travel up the line from farm to national decision maker. However, the data do not travel back down to the farmer and trader in a form and with a mode useful to farmer decisions. Farmers might make some use of yield forecasts for making late season adjustments in practices, but at the least the association of yield with certain cultivation practices should, as revealed in the forecasting procedure, provide useful information for extension materials. Traders and processors, and at this time agencies like GASC, can develop their buying strategies more precisely with such forecasts.

Timely forecasts have the potential to benefit traders and policy makers by facilitating early planning of processing capacity needs, projections of import requirements and export possibilities, ginning capacity estimates, releases from storage, and geographical estimates of supplies. The farmers themselves might be better able to anticipate harvest and marketing strategies, and information of a technical nature, generated during the sampling process, could potentially form the basis for enhanced extension packages.

The recommendations of the data assessments, especially the assessments of wheat and cotton yield forecasting, technical assistance by MVE starting in 1999, and continued by CSPP through the present for cotton, and MALR's adoption of many of these technical improvements, succeeded in making important adjustments in both yield forecasting methods and, incidentally, in yield estimating procedures, per se. The recommendations were:

1. Integrating crop cutting (objective yield measures) and forecasting techniques, thereby improving the reliability of both,
2. Adopting sampling as the method of preference, replacing subjective estimates based on observations by extension agents,
3. Installing forecasting procedures for wheat, where they had not existed prior to the APRP intervention,
4. Streamlining the use of crop cutting in making yield estimates, with yield forecasting methodology leading to a reduction in the size of sample used to generate final yield estimates,
5. Shifting the timing of forecast-yield estimates to approximately one-month earlier than had been the procedure prior to MVE's involvement,
6. Significantly advancing the timing of the release of yield estimates, from several months after harvest, to two or three months prior to harvest, adding much value to yield estimates, especially from the point of view of policy makers and private businessmen, and,
7. Stimulating a rapid geographic expansion of cotton yield forecasting.

This program is an excellent example of successful donor coordination and delivery of technical assistance to the field in a scientifically sound and collaborative mode. APRP, GTZ, and MALR have been cooperating successfully for several years and have managed to create a service that produces

accurate and timely information useful to MALR policy makers, traders, and the donors themselves. The process was apparently institutionalized to the point where outside assistance will soon no longer be necessary. APRP's continued involvement, including providing training of enumerators, modelers, and samplers, is helping improve statistics in agriculture across the board, not only in the instance of yield forecasting.

Through APRP's intervention, and following on with resources coming out of another USAID project, DT2, transfer of technical and institutional know-how continues at a sustainable level. Forecasting of citrus yields is receiving a boost from the combined efforts of APRP and DT2, beginning with the current crop cycle.

Unfortunately, it is evident that distribution of the forecast results really ends with a few, high-level GOE officials and some of the larger enterprises. No effective means for wider distribution have been proposed as yet. Yields and yield forecasts would, in short, be a useful addition to market news and extension materials. Currently, the institutional structure for producing the data appears to be firmly in place, but data distribution systems are rudimentary at best, or lacking entirely.

Table 4-2: APRP' Impact on Yield Forecasting Activities

Criteria	Impact
Technical: • Coverage	Within-season yield forecasts were added for cotton and wheat, now cover the entire country.
• Accuracy	MALR improved the calibration of the estimating models, introduced a manual to improve consistency, and now apply accurate data in making the yield forecast.
• Analytical Content	Accurate field measurements are entered into the model, and yield forecasts are thus improved.
Institutional Capacity: • Structure	The process has been institutionalized, but some training will still be necessary to sustain the new approach.
• Process	Data are collected on time; there is timely execution of tasks and timely dissemination of results.
• Collaboration	There is now better coordination from field to forecast, and good vertical coordination among MALR units. The activity is an excellent example of successful donor coordination.
Usefulness to End Users: • Form and • Availability	Good data travel up the institutional chain from farm to national-level decision makers. However, the data are not readily available to traders or farmers.
• Scope of Distribution	There could be a powerful impact on pre-harvest planning for imports, exports and procurement planning, if the scope of distribution were to be increased.

4.3 Planting Intentions Estimates for Forecasting Water Requirements

This effort involves close coordination between MALR and MWRI and three elements of the APRP project, MVE, RDI and EPIQ. MVE's involvement consisted of its activities in improving area estimates, which indirectly are expected to support estimates of planting intentions. GTZ will begin collaborating with the program this year, and will be providing further technical assistance under its upcoming new project. It has completed an initial, pilot phase and is moving at a deliberate pace toward the goal of covering all governorates. Technically, all sampling and modeling requirements are in place. However, expansion into more governorates is apparently straining the system at the "Hod" level. Supervision and training of numerators will require even better cooperation between the two ministries to succeed, once all irrigation command areas are covered in the next several years. Institutional arrangements will be stretched to their limits because, not only are area estimates required at the time of planting, but water requirements need to be estimated for different seasons and stages of crop growth. The samples and modeling estimates must be timely, and water requirements must be estimated, approved and acted upon rapidly, in order to meet the 15-day time requirement for water releases to reach end canals in the Delta.

The necessity for re-estimating water requirements during the growing season as various cultural practices and stages of plant growth unfold requires that the MALR extension agents and their MWRI counterparts (guides) be in a "rapid reconnaissance" mode throughout the crop season and that they are fully, technically capable of accurately collecting the basic area data, which is later used by MWRI for judging crop water requirements. There is some preliminary evidence that such precision and time sensitivity is taxing field personnel, perhaps requiring more training, more and closer supervision, and a better system of incentives to stimulate field agents to accept this added, more demanding work load.

The system for forecasting water requirements is a critical element in support of the newly liberalized agricultural sector. Farmers can now grow what they want, how they want, and even to a degree, when they want, putting a strain on the system of water allocation that was based on official cropping plans and water allocation formulas developed over many years. Again, the weak link in the system, the technical and managerial capability of the field agent, may be the ability to obtain precise area estimates, on time, which would allow the MWRI to accurately forecast water requirements throughout the season.

Careful attention and further in-depth assessment of the situation would seem to be prudent, given the vital role of water requirement forecasting under the new, liberalized regime. A comprehensive program of continued technical assistance, institutional development, and training, especially at the village/secondary canal level, would seem to be indicated. The APRP has made a start toward improving area estimates through its study of crop area for major summer crops, its involvement in area estimates for the new lands, and its new initiative in area estimates for winter crops. MVE introduced area measurement techniques that proved to be much more accurate than the old methods used by MALR, at least at the pilot stage. MALR appears willing to adopt most of the technical recommendations and apply them broadly throughout the country.

Two policy and institutional issues that may be interfering with the proper functioning of the water demand estimating system, are: 1) MALR's policy that the agricultural crop area data must go to high-

level governorate officials for refining, prior to being forwarded to MWRI district offices for computerized forecasting of water demand, and 2) a policy issue associated with estimation of rice area. The policy of governorate-level review could reduce the effectiveness of the whole process, as timing is inevitably thrown off and error may be introduced into the data. Perhaps the issue is important enough to warrant high-priority negotiations between the two ministries. Also, it was noted that extension agents tend to report only the officially allotted rice area, although it is well known that in many areas much more rice is grown than is allowed by the GOE. This practice, if widespread, could have serious consequences for the accuracy of water demand projections.

Table 4-3: APRP's Impact on Forecasting Water Requirements

Criteria	Impact
Technical: • Accuracy and Analytical content	Accurate area estimates and reliable modeling of water requirements now exist.
• Coverage	Water is released in a timely fashion to each major canal system, and no shortages occurred at tail-end tertiary canals, according to results of the pilot activity. 14 governorates are now covered by program.
User-friendliness: • Form and Availability	The pilot proved that meeting water requirements is feasible with the system, as designed.
• Scope of distribution	There is potentially a very significant positive effect on crop production, if water supplies better allocated. Thus, rapid expansion of the system to all governorates is needed.
Institutional capacity: • Structure and Process	Incentives, training and equipment are needed to sustain the process and install the appropriate organizational structure. The practice of reviewing the area estimates at the governorate level, by MALR, should be reviewed.
• Collaboration	Coordination among ministries and within various levels of each ministry is currently good, but may need to be assisted with outside management inputs, especially as the program is expanded to include the whole country.

4.4 Market News

4.4.1 Overview

The considerable successes realized by APRP activities in helping the GOE and some private entities greatly improve the availability of international price and marketing data, and some very useful domestic technical information in the case of cotton, are analyzed in some detail in chapter 2. Suffice it to say here that efforts by RDI, primarily in producing good situation and outlook reports with MALR, CATGO, and ALCOTEXA, with considerable concentration on the cotton market, were true success stories with respect to developing and disseminating useful market news. The effort was, however, limited in three respects: for the most part the reports contain international data only; news was disseminated to only a few officials and large enterprises; and the websites created have yet to reach a broad band of users. Apparently then, the absence of domestic market information and failure to truly address the market information needs of farmers and smaller traders is a serious gap in the joint efforts of APRP and MALR.

Consequently, this section focuses on the needs of farmers, while recognizing the importance of market agents such as traders and processors as decision makers in the liberalized agricultural economy. Moreover, it focuses on the lack of effort, either by APRP or MALR, to collect, process and disseminate domestic market price information, even after five years of implementing the APRP project. Except for market price data for four fruit and vegetable wholesale markets, generated by the USAID-funded MIP project, the farmers' source of market information is his or her neighbor, sometimes traders, and in some instances, the local extension agent. ATUT generates good international market data, but only provides it to a few, large desert growers/exporters. They do not serve the vast majority of farmers, nor do they collect local market data. This is a serious gap in service to the liberalized farm economy and should be filled as soon as possible, and filled by MALR, the only institution capable of mounting such an undertaking, given that market information is a "public good".

The scope of the collection effort for domestic market prices must be broad, including major grains, cotton, livestock, and berseem, in addition to the data on fruits and vegetables already collected. Extension agents, suitably trained to survey farmers and local markets, might be the primary vehicle for collecting the price and sales data, although a decision on that must await the results of a more in-depth assessment of the overall situation. Because they are a handy resource in local areas, extension agents or recruited to perform many data-related tasks, in addition to their normal responsibilities. District, governorate, and national statistics units, and national economic analysis units should be involved in producing analysis suitable for market news releases, but they will require technical training, organization, and management assistance to carry out data processing, analysis and packaging for dissemination to farmers and extension agents. Also, the package of farmer-oriented market news must include information on international markets, suitably fashioned for ready understanding by small farmers.

The results of the present assessment, albeit somewhat preliminary in nature, strongly suggest that the extension agent, adequately trained and provided with appropriate incentives, ought to be the focal point for collecting and disseminating local market news. This would strain MALR's technical and institutional capability, at least temporarily, as extension agents have little experience in collecting

marketing information, and even less experience in delivering economic advice to farmers. Regarding the latter, it is especially important that farm income and cost data, appropriately processed by analytical units in the EAS, be distributed to farmers by extension agents who have received training in the fundamentals of farm budgeting.

APAU and the Marketing Extension Unit must have their mandate modified and their skills upgraded for handling the analytical demands to be placed on them by the new domestic market news and farm-level economic information requirements. Analytical requirements include interpreting price trends, analysis of the implications of changes in costs and returns, and analysis of market performance (economic efficiency). Moreover, they must collaborate with the statistical units at all levels in preparing timely releases of market information in a form useable by extension agents, farmers, and marketing agents.

A detailed recommendation and plan of action, including technical requirements, management and institutional capacity considerations, and policy decisions required, should be the subject of a separate study, following general agreement to proceed by the leadership of MALR. A proposed outline for developing such a recommendation is attached to this report (Annex 2).

4.4.2 Cotton Market Information

The cotton sub-sector, because of its importance to the economy, and because information and information dissemination are highly complex, received a lot of attention from APRP. ALCOTEXA and CATGO were the principal clients for this activity, with the former organization being primarily responsible for generating price data based on international price relationships, and the latter having responsibility for grading and certifying cotton and disseminating technical data. ALCOTEXA is an association of cotton exporters, largely private, and CATGO is a semi-autonomous public sector entity. There seems to be an effective working relationship between the two entities, and they complement one another in the process of generating market information. MALR's role is to provide basic area, yield, and production data. CAPMAS collects some marketing and price data for domestic markets, but does not make it available in a form useful for farmers and traders. Generally, there is no effective mechanism for disseminating market information, outside of the exporters association and a limited number of high-level GOE officials.

Both GTZ and APRP carried out studies of the market information needs of the cotton sub-sector, and each concluded that collecting domestic price information would not be worthwhile because domestic prices, de facto, only reflected the official floor price. There is, however, emerging evidence that price variation above the floor price is happening, at least for some of the finer export grades. Also, the private sector is playing an increasing role in the market, as the rather strict marketing rules of allocation are gradually being relaxed. If such is indeed the case, the issue of the value of domestic market information should be re-examined, and steps taken to generate such data for the benefit of traders and farmers alike if it seems warranted.

Meanwhile, APRP had a significant impact on cotton market information in several specific instances. RDI assisted the three major players, MALR, ALCOTEXA and CATGO, to establish websites that are comprehensive in coverage of international market data as well as technical data on the domestic

crop. The information is accessible to key players in the Egyptian cotton trade. The amount and quality of technical information was greatly expanded by CATGO with technical assistance from RDI. Furthermore, their new website promises to greatly facilitate the ability of traders and processors to locate precisely the grade and type of cotton needed. The ability of the market to determine relative prices of different types and grades of cotton will thus have been significantly improved, in part through APRP's interventions. Weekly publications have also been expanded in both coverage and scope of dissemination, which should enhance the efficiency of the cotton marketing process.

Both institutions that are specialized in cotton have a high level of capacity to collect and distribute market information. However, both institutions appear reluctant to collect and disseminate domestic market information. Thus, MALR, at least in the near future, will probably have to be responsible for that side of the structure. Following the further liberalization of the cotton market, there will be a need to develop a link between MALR and these institutions concerning domestic price and sales information, and its dissemination to farmers in an extension package. There does not seem to be a close relationship between MALR and the specialized institutions at present, so a great deal of work will have to be done to foster collaboration in the area of domestic market news. For example, cotton yield forecasting is potentially of great value to almost every facet of the cotton industry, but traders expressed doubt that it is very useful at present, because area estimates made by MARL are considered to contain gross errors. Hopefully, the new area estimating methods being introduced this year and last year, with assistance from MVE, will solve this problem.

Table 4-4: APRP's Impact on Market News

Criteria	Impact
Technical: • Coverage	APRP assisted MALR in adding situation and outlook reports, but confined themselves to international data. There is still limited dissemination of even the international data.
• Accuracy and • Analytical Content	APRP helped improve the accuracy of the data and added some analysis.
Usefulness to end users: · Availability/ Scope of distribution	A limited number of officials and large traders have better access to international data, in a useable form, especially in the case of the cotton sub-sector. There was no significant increase in market news available to farmers and smaller traders.
Institutional capacity: • Collaboration, Structure, and Process	No significant institutional capacity to collect domestic market information, and disseminate it to farmers and small traders, was developed. There was, however, a significantly improved capacity in market news in the private sector, (ALCOTEXA) for dissemination to public and private sector decision makers.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Timely, high quality data, including farm income, yield forecasts, and market information, were generated and scientifically processed through the technical assistance efforts under APRP and, in many instances, with cooperation from GTZ. Area estimates are likely to improve when the results of area measurement pilot activities are applied[1]. These activities greatly improved the scope, precision, efficiency of generation, and usefulness of basic agricultural data. In the process, yet another significant achievement, the extraordinary development of a number of important institutional linkages between ministries and donors, should be highlighted. Overall, these achievements constitute a true a success story, especially considering the fact that data generation was not an explicit part of the APRP project design.

The most important individual achievements were:

- Accurate farm income data are now available for 15 governorates, and the remaining governorates will be covered within a short time.
- Early-season forecasts of yield for cotton and wheat are firmly part of the MALR's information generating process, and the DT2 project has provided training in yield forecasting for citrus. Data are of high quality, timely, and useful to a broad range of institutions in the agricultural sector.
- MALR and MWRI have developed the capability for predicting the demand for water, based on estimates of planting intentions. The program is now being implemented in 14 governorates and the GOE intends to expand it to the entire country.
- Good data on the new lands are now being generated.
- Progress is being made on improving crop area estimates, in particular by introducing new measuring techniques.
- Some good strides were made in developing market information for cotton. Weekly international market data are produced, along with much improved technical data on the domestic cotton market. Data are available to public and private decision makers in both electronic and hard copy formats.
- Finally, numerous assessments, special studies, and verification efforts, carried out by all APRP units, often with the close collaboration of GTZ, added immensely to the stock of agricultural information.

While progress was made on many fronts to affect the availability of the data to users, including improving timeliness of distribution and widening the coverage of data dissemination, these efforts showed less progress in achieving what might be termed improvements in information, as opposed to improvements in data quality. Reports are not widely distributed and are not generally adequate to the needs of users. Much of the data are still held too close, too long by high-level government officials,

[1] EAS has already purchased the necessary equipment.

and information in useable format for private traders, processors, and exporters is not given much priority. Gaps still remaining in agricultural information include:

- MALR, CATGO, and ALCOTEXA should include domestic market information in their periodic reports.
- There is a lack of analysis of the data.
- Extension materials lack economic information.
- There is a weak link between extension and EAS.
- Geographic coverage and coverage of major crops is incomplete.
- Generation of data for the new lands still lags behind the standard set for the old lands.
- Area estimates are much improved, but the program is just getting underway.

The impact of APRP on information for farmers and local traders, the newly created primary decision units in agriculture, was not significant. The GOE apparently did not take seriously the need for farmers and marketing agents to have economic intelligence in order to make their decisions. APRP, although they had no specific mandate to do so, nevertheless did not find an effective means for creating the political will, the institutional capacity, and the development mode needed to create a farmer-friendly information system. After five years of largely successful interventions in information generation in general under APRP, Egypt still does not have a domestic market news service and economic extension packages for farmers and traders.

Economic efficiency in agriculture will depend to no small degree on the quality of information for farmers and traders. This information should include domestic price and sales information on a weekly basis, extension materials on costs and returns, forecasts of yield, area/water requirements, and technical recommendations on farm practices. All crop, livestock, and farm inputs data should be covered, as well as international prices.

These conclusions suggest the need for a major effort to build a farmer-oriented information system for Egypt's agricultural sector. It will indeed require a major allocation of human and financial resources. But, it will undoubtedly have a high pay off in terms of efficiency gains, greater growth, and greater employment in the sector.

5.2 Recommendations

5.2.1 Institutionalization

Technical and institutional aspects of basic data collection and processing activities of MALR and MWRI, vitally affected by the APRP programs over the last five years, including income and cost data, yield estimation and forecasting, area estimates, estimates of planting intentions to forecast water requirements, and improvements in the overall quality of area, yield, and production estimates, are much improved and can be counted as true success stories. However, full institutionalization of the system is still some way off. It is therefore recommended that technical and managerial assistance be continued for some time beyond the end-date for APRP.

The considerable successes of APRP were accomplished without a formal strategy for information development being explicit in the project design. Surely, therefore, a first class information system

meeting the needs of the newly liberated sector could be built in a few short years, if priority attention in a special project were given to this important activity.

5.2.2 Price and Sales Information

All market information systems currently being developed and utilized should add domestic prices and sales information to the international data currently being collected and reported.

5.2.3 Dissemination of ALCOTEXA and CATGO Information

The cotton information efforts of ALCOTEXA and CATGO should add a broad range of recipients to their distribution lists, including smaller, private sector traders and ginners, and should add information on domestic sales, prices, and stocks. Smaller cotton traders and farmers should be kept in mind in the preparation and dissemination of this information.

5.2.4 Extension Element of Crop Yield Forecasting

Yield forecasts could be useful to farmers, indirectly by forming the basis for extension materials, as well as traders, processors, and exporters. Therefore, the forecasting activity should add an extension information element to provide timely feedback to farmers on yield forecasts. Meanwhile, MALR should adopt a liberal policy toward disseminating the forecast information, immediately after it becomes available, to a broad range of public and private traders and processors. Improved area estimates will also greatly enhance the value of yield projections.

5.2.5 Resources for Estimating Water Requirements

As farmers learn to deal with free-market conditions, and as the last vestiges of price and marketing controls are eliminated, one should expect increasing volatility in changes in cropping patterns and prices. This is sure to put even more strain on the technical and institutional capacity of MALR and MWRI to forecast water requirements. Adequate GOE resources should be applied to improvement and expansion of the process. Also, the time is probably not right for pulling out technical assistance for this activity. GTZ fully intends to step up its level of assistance for this activity, but this critical task could also benefit from continued USAID assistance.

5.2.6 Market News Services

MALR should fulfill the terms of Benchmark A 8, Tranche II, and complete the preparations for a comprehensive market news service aimed at guiding farmer-decision-makers in this newly liberalized agricultural economy.

5.2.7 Reviewing Cropping Intentions Estimates at Governorate Level

GOE and APRP should put high priority on finding a solution to the policy issue inherent in MALR's decision to review basic cropping intentions estimates at the governorate level. This is being done ostensibly to refine the estimate, but the system for forecasting water demand could be compromised, as the time line is interrupted, and errors might be introduced.

5.2.8 Needs Assessment for Capacity Building

USAID should consider funding a comprehensive assessment of the technical and institutional capacity building actions necessary to develop a farmer-friendly market information system, building on the successes of the agricultural information activities completed thus far.

ANNEXES

Annex 1: A Note on Cotton Market Performance

Annex 1. A Note on Cotton Market Performance

Market information is only one of the many factors that affect the efficiency of markets. To put information into a more general framework, this Annex examines the performance of the Egyptian cotton market during the last few years, as the government gradually reduced its controls. The lessons are quite clear. Liberalizing the agricultural sector requires a balanced, comprehensive approach to information, other governmental market support activities, support for private sector competition, and disengagement of government from market activities as much and as soon possible.

Performance of a free-market system depends largely on competition that in turn contributes to marketing efficiency. Efficiency is manifest primarily in prices that reflect true world supply and demand and the lowest possible marketing margins or costs. The competitive interaction of hundreds of profit-seeking marketing firms and producers, at home and abroad, should generate a price to farmers that accurately reflects the supply of cotton of various qualities on the one hand, and consumer demand for cotton on the other.

Theoretical Concerns

Pricing efficiency can be measured in several ways, the most effective of which is the correlation over time, quality and space of domestic prices and international prices. Circumstances in the Egyptian cotton market today will not, however, allow application of appropriate statistical measures. There is perhaps only one year in which prices were permitted to vary sufficiently to provide statistically reliable measures. Fortunately, there are some structural variables that underlie marketing efficiency, that can provide some indication of pricing efficiency. Examples of these include the number of firms and their market shares, the presence of absence of marketing rules that allow the free play of competition, official allocation schemes, public or private market power, and the degree of flexibility (responsiveness) in the market. In the latter instance, a market could conceivably generate efficient prices, but be judged to be performing inefficiently if price response is slow, owing to some factor that inhibits flexibility.

The performance of the Egyptian cotton market at the "point of first sale" (farm gate) is assessed, therefore, by first analyzing the structure, then by applying certain direct measures of price behavior, and then by grading performance against a theoretically optimal situation. This method is somewhat rough, but is the best that can be done, given the absence of the appropriate price data.

Structural Measures

Drawing on recent studies by MVE(2001) and GTZ(1997, etc.), one may arrive at certain inferences about marketing efficiency by analyzing the competitive structure of the existing market structure for seed cotton (2000/01). In a survey of farmers for the 2000/01 cotton-marketing season, farmers indicated that they had four choices for selling their cotton:

Type of Outlet	Percent of Cotton Sold
Cooperatives	19
PBDAC 'rings"	45
HSU	17
Small and medium traders	19

Over 60 percent of the farmers interviewed sold their cotton through official or government-allocated outlets, 19 percent used cooperatives, and 19 percent sold directly to private traders. On the face of it, this would seem to be an ample range of choice, perhaps indicating a competitive market situation. However, four factors probably greatly reduced the competitiveness of the system:

- Only one buyer is allowed per "ring"
- Floor prices in fact appear to have been the only prices paid
- Most farmers first learned about prices through the buyer, as there was no effective alternative source of market news.
- Then number of offers received, according to the official market rules, should have been only one. However, 43.6 % of the farmers interviewed indicated that they received at least one offer outside of the official "ring".

Also, in terms of actual volume purchased, various publicly-owned entities, including trading companies, gins, HSU, and spinning companies, accounted for fully 80 percent of the purchases made in the "rings". Private companies purchased only 20 percent. Rings accounted for 67 percent of the total seed cotton delivered to gins. Cooperatives and traders buying directly farmers accounted for about 33% of the cotton delivered to the gins.

These structural measures, while by no means definitive, do suggest the possibility that significant inefficiencies may exist in the cotton market.

Performance

The above, somewhat unbalanced structural picture of course does not necessarily imply lack of marketing efficiency, but it is certainly cause for concern. One overt result of this structure is that the floor price is rigidly enforced. There is little room for bidding prices up higher than the floor price, as one might expect to happen for some types and grades that are in strong demand in the export market. Price premiums over the floor price were reported for sales to cooperatives, but they appear too small, less than two percent of the floor price. A premium of close to 10 percent was reported on a few sales to large exporters, but this was quite exceptional.

One can only speculate on what the "efficient" price spread should have been. But, larger premiums probably would have been received by farmers selling through their own cooperatives if: (1) cooperatives had adequate credit for financing marketing costs, (2) they could function as general traders, buying and selling non-members cotton as well, and (3) they had sufficient financing to carry the farmer's cotton through the ginning process. In any case, there would appear to be many opportunities to increase competition at the farm gate by strengthening the role of cooperatives**.**

Small, private traders, of which there were only 150 during the surveyed marketing year, should also develop into a competitive force, especially at the "point-of-first-sale". If they were free to expand and buy in any ring they chose, or if they increased their direct purchases from farmers, they would surely provide competition, thereby generating larger and more appropriate price premiums. Their arbitrage would be an important element in the process of price discovery. Unfortunately, they are still a minor force in the marketing system, having bought only four percent of the cotton delivered to gins in the 2000/01 marketing season.

An interesting pattern of trade emerged with respect to large traders, whether government-owned or private. The share of public trading companies dropped from 64 percent in 1999/00 to 30 percent in 2000/01, which share was largely picked up by large private exporters (members of ALCOTEXA). Although each company had exclusive rights to buy in a specific "ring", they could also buy outside the ring. Apparently, also, rings were allocated more fairly this year(2001/02) than in the past. However, there are some disturbing signs that market dominance may be emerging, and this should be monitored.

Of fourteen private trading firms, five accounted for 73 percent of the market, and one firm had 10 percent (which grew to 25 percent in 2001/02). This does not necessarily mean that market power was in fact exercised. However, if the ring structure were to be abandoned, if cooperatives do not grow to meet the new challenges of a more open marketing system, and if the remaining public enterprises were to be privatized, then monopoly power could emerge as a real problem.

Conclusion

The cotton marketing system, at the point of first sale, appears to be evolving toward an efficient, high-performing state, although it is not there yet. Full competition, and therefore high performance, will depend of the successful development of five factors only one of which is market information:

- Modification of the ring system to allow more than one buyer to participate;
- Modification of the floor price scheme to allow free trade at "world" prices;
- Introduction of an impartial, broad-based domestic market news system; and
- Monitoring of the emerging concentration of market power.

Annex 2: Proposal for A Market News Assessment

Annex 2. Proposal for A Market News Assessment

Several million small farmers rely mostly on an informal, word of mouth system for their basic information on costs and prices. Increased economic efficiency would surely follow a systematic, technically sound market news program aimed at the farmers as the premier decision makers. The following is a proposed outline for an assessment that would address the feasibility of establishing a farmer-focused market news service:

- Review the market news currently being produced and made available to farmers.
- Re-assess the need for a comprehensive, government-sponsored market news service for farmers.
- Assess the technical capacity of extension agents, district statistical offices and headquarters units for collecting, processing, analyzing, and disseminating domestic market information.
- Assess the role of ministries other than MALR in generating market information, including MSHT, MEFT, and MWRI. Assess the strengths and weaknesses of the required linkages between MALR and these ministries. Assess linkages between MALR and private sector entities.
- Analyze institutional and managerial structures and processes, determine reforms required, and design a system that would successfully deliver this new service to farmer-decision-makers. Some structural changes already identified are: organize and train extension agents for the task of collecting and disseminating economic information, set up extension support units to package and distribute the information, and re-assign and train members of the APAU and Marketing Extension Units to carry out the special tasks required to "add information value" to raw data--- for use by farmers.

Develop detailed recommendations on training, economic analysis, unit coordination, budgets, a timeline for implementation, and a plan for institutional capacity building.

- Conduct a benefit/cost analysis of the investment required to implement the farmer-oriented, market news service. Costs include technical assistance, training and perhaps additional incentive payments to extension agents, processing and distribution costs, and additional operating expenses. Benefits include income and employment generated by more efficient allocation of farmer-controlled resources.

Annex 3: Area Estimation for Main Crops

Annex 3. Area Estimation for Main Crops

1. Background

To estimate or forecast the volume of production of the major field crops good data are needed for both yield and crop area. The MVE unit had conducted some activities regarding yield, but APRP had not made any effort to improve the estimation of area. It is essential to have good area data because these data are used to document the growth rate of production and to study the impact of agricultural policy on these crops. This is important both for impact assessment in general and for policy makers in Egypt in particular.

2. Objectives

The objectives of this activity were to: 1) Assess the availability and quality of agricultural data for the area of major summer crops (cotton, rice and maize) and winter crops (wheat, berseem and fava beans), and 2) establish an advanced objective methodology and procedures to estimate the area of these crops.

3. Methodology

To achieve the above objectives, the MVE team adopted a work plan of two phases: phase one for summer crops and phase two for winter crops. During the first phase, the team:

- Assessed the current procedure for crop area estimation, with special attention to the major summer field crops, i.e. cotton, rice, and maize
- Examined the procedure for obtaining the published statistics (of MALR), starting from the village level
- Reviewed any extension agents' notebooks for the major summer field crops in the selected villages.
- Developed an improved method to be adopted for estimating and measuring the crop area of these crops.
- Selected a representative sample of districts and villages and conducted a limited sample survey of key data elements in these sites to test the feasibility of data collection
- Carried out on the job training for the sampling at the governorate level to apply the improved method of measuring the crop area estimation
- Conducted a statistical analysis to compare the data obtained from the team's surveys with the data collected by MALR at the governorate level
- Established database for the crop area data collected by the study.

The pilot study was conducted in the following governorates: Gharbia, Behira, Sharkia, Dakahlia, Minia and Assuit.

In the second phase, the techniques that were developed during the summer season and the new

equipment that the EAS has purchased were applied during the winter season. The EAS staff were trained on using the new equipment in the same governorates.

An additional objective of the second phase was to compare and develop a forecasting procedure for the area of the major summer crops using the data on area of winter crops. This procedure was tested using the area data from the MALR indicative cropping pattern and also the actual area.

4. Situation and Assessment of the Techniques

4.1 Old Techniques (Taping)

4.1.1 Description

The sampling staff used to estimate the area of each field based on the following steps:

- Measuring all field lengths using the tape (20-50m).
- Measuring one of the traverse angles.
- Drawing a clear sketch showing the measurements.
- Dividing the traverse into triangular pieces, and calculating the area of each triangle separately and summing up the triangles' area in order to estimate the area.

4.1.2 Assessment

- Practically, the old technique is suitable for small areas only.
- Using the tape for measuring lengths longer than its length means measuring the line part by part without alignment.
- This method always gives higher lengths than the original lengths by 10-15%.
- Field staff were measuring lengths on vertical slopes instead of the correct horizontal lengths.
- Measuring one angle for each traverse is not enough to draw the traverse for most cases.
- The method for measuring the internal angles using the surveying triangle is not correct.
- This method never gives close traverses.
- In some cases when there are curved edges, they could not handle it with taping. They simply assume that it is straight line, which creates another source of error.

The principal sources of linear measurement error are: Tape not stretched straight, wind, incorrect alignment (horizontal and vertical), careless plumbing over point, erroneous length of tape, variation in temperature and incorrect tension. Some of the above errors are caused by carelessness or lack of training of the staff; others are caused by not accounting for those errors that are inherent in the tape.

4.2 New Techniques (New Instrument)

4.2.1 Description

At the beginning of the activity, the team decided to use the Theodolite for measuring lengths and angles for each traverse, and using the tangential method for measuring lengths. To simplify the work, the team

used the one-location method. This means that one should put the instrument on one corner of the traverse and measure the lengths of the two edges and diagonal length. If the traverse has more/less than 4 edges, one can measure it by sending rays to each corner from the one-point location and measuring all lengths and angles. By using the same calculation method described before, one can estimate the traverse area. If the traverse has curved edges, additional work should be done by sending many rays along the curve length to draw it.

4.2.2 Assessment

The first trial was fairly good, except that the theodolite needed time to be adjusted, and the tangential method needed more calculations to give the lengths. Therefore, the team decided to use the surveying level with the fixed hair stadia method for measuring lengths and angles. The team also used the two-point location method and the magnetic compass to find the directions.

The stadia method provides lengths directly, and the two-pont location method gives five lengths for each traverse without any plotting correction. This method also eliminates any personal error. Moreover, this method provides a chance to double check each line length by calculation as described before.

5. Main Findings

5.1 Taping Measurements

- Field staff were measuring the field area as a rectangular area, neglecting any changes in edge shape and only measuring length and width.
- In some cases, there is a conflict in stating the observation correctly.
- In most cases, only one angle is measured.
- It is important to note the used method for measuring angles is not correct. Moreover, and based on various tests, it has been found that nobody knows how to use the surveying level for measurement angles.

5.2 New Instrument Measurements

- The stadia method with the level is the most suitable method to measure the distances for crop area estimation.
- The level provides not only distances and internal angles of traverses, but also changes in the traverse sides (curved, broken line).
- One can use the level easily to re-plot a complete cluster or italics with all its details following the two crop area estimation studies, a recommended training program was conducted to cover all the needs of the sampling department staff.
- The new instrument purchased by the MALR provides highly accurate measurements, including an auto-focus facility that significantly reduces measuring time.
- It is important to note here that the objectives of this work was not only for measuring and plotting the area of each farmer is field but also choosing the best method to measure crop area.

6. Statistical Analysis

Matched pair t-test analysis showed significant difference between New Instrument measurements against taping measurements in all governorates in the study. The 95% confidence intervals of the ratio estimates of New Instrument for almost all crops were mostly shorter than that of the taping measurements method. Thus, the ratio estimates (correction factors) obtained from the new instruments are more efficient to be used in crop area estimation and are recommended. The final results of the study show the fitted equations of the weighted ratio regression for cotton, maize and rice, as well as the total crop area obtained from the agricultural department before and after adjustment. These show that in general there is overestimation for crop area in the selected governorates.

7. Conclusion and Recommendations

It is concluded that the taping process is not suitable for crop area estimation, and the method of measuring angles using the surveying triangle is not correct.

The new instrument method was more accurate than all other measurement methods. It is recommended that it be used to derive correction factors for adjustment of crop area estimates.

Annex 4: List of Interviews

Annex 4. List of Interviews

1. APRP/MVE

Gary Ender, COP
John Holtzman, Economist
Morsy Aly Fawzy, Statistics and Economics
Adel Mustafa, Economist

2. APRP/RDI
Jane Gleason, COP
Said Hussein, Economist
Edgar Ariza-Nino, Economist
Ibrahim Siddik, Economist
Lamia El-Fattal, Economist
Steve Joyce, Management

3. MALR/AERI
Ramzi Mubarek, Statistician
Abdel Hamid Saad, Economist

4. MALR/EAS
Mohamed Shahed, Director
Sohair Mustafa, Director, APAU
Ismail Gomaa El Din, Statistics
Said El Agati, Sampling

5. MALR/Extension Service
Tantawy

6. GTZ

Heinz Burgstaller, COP
Werner Gassert, IPM Advisor

7. ALCOTEXA
Ashraf Mohktar, Analysis
Shafik Gomaa, Information Center
Medhat El Alfy, Cotton Exporter
Amin Abassa, Cotton Exporter

8. Alexandria Businessmen's Association
Mohamed Ragab, Exporter

9. North Sinai Governorate
Head of sampling office
Head of Agricultural Affairs
Statistical Office
Information Center
District: Statistics, Sampling, Information
Extension Agents

10. Dakahalia Governorate
Head of Sampling Office
Head of Agricultural Affairs
Statistics Office
Information Center
District Offices Statistics, Sampling
Extension Agents

11. USAID
Mohamed Omran, APRP Project CTO

Annex 5: List of Principal Documents

Annex 5. List of Principal Documents

1. RDI, 1999, Study on Cost of Production and Farm Income (#89) (Said Hussein and Jane Gleason).
2. RDI, 1997, Assessment of Market Information Needs of An Open and Competitive Marketing System (#23) (Edgar Ariza-Nino and Ibrahim Siddik).
3. RDI, Mismatch: Crop Forecasting and Water Use (# ---) (Said Hussein).
4. RDI, 1998, Market Information for Situation and Outlook Reporting (#40) (Lee Shroeder).
5. RDI, 2001, Egypt Cotton and Rice Market Information System (#131) (Djime Adoum).
6. RDI, 1998, Retrospective Assessment of the 1997/98 Cotton Marketing System (#28) (Edgar Ariza-Nino, et.al.).
7. RDI, 1998, Policy Brief: The Wheat Sector in Egypt (Edgar Ariza-Nino).
8. RDI, 1999, The Impact of Liberalization and Privatization on Women in Agriculture in Egypt, (#51) (Nagat El Sanbary, et. al.)
9. RDI, 1999, Gender Issues in Privatization and Liberalization of the Agricultural Economy in Egypt (#75) (Nagat El Soughby, et. al.).
10. MVE, 1998, Plan for Assessing the Impact of Egypt's Agricultural Policy Reform Program (# 1) (Tom Zalla, et. al.)
11. MVE, 1998, Availability and Quality of Agricultural Data in Egypt (#4) (Morsy Aly Fawzy, et. al.)
12. MVE, 2000, Availability and Quality of Agricultural Data for the New Lands (#12) (Tom Zalla, Morsy Aly Fawzy, et. al.).
13. MVE, 1999, Assessment of 1997 Egypt Integrated Household Survey Data for Use in Constructing a Producer Baseline (#8) (Stephen Goetz).
14. MVE, 2000, Short-Term Cotton Forecasting in Egypt (#13) (Morsy Aly Fawzy, et. al.).
15. MVE, 2001, Short-Term Wheat Yield Forecasting in Egypt: an Assessment (#16) (Morsy Aly Fawzy, et. al.).
16. MVE, 2001, Policy Lessons from the 2000/01 Cotton Marketing Season in Egypt (#17) (Ronald Krenz, et. al.).
17. MVE, 1999, Wheat Subsector Baseline Study (Impact Assessment Report #6) (Wallace Tyner, et. al.).
18. MVE, 1998, Cotton Subsector Baseline Study (#5) (John Holtzman, et. al.).
19. MVE, 1999, Rice Subsector Baseline Study (#3) (John Holtzman, et. al.).
20. MVE, 1998, Fertilizer Production and Marketing in Egypt, Baseline Study (#2) (Tom Zalla, et. al.).
21. MVE, 1998, Producer Survey Results, APRP, Tranche I (Verification Report #6) (Morsy Aly Fawzy, et. al.).
22. MVE, 2000, Seed Cotton Marketing in Egypt, 1999/00 (#11) (Ronald Krenz and Adel Mustafa).
23. MVE, 1998-2001, Verification Reports for Tranches I, II, and III.
24. GTZ, Report on the Project Progress Review (Wolfgang Hannover), September 2000.
25. GTZ, On-Farm Water Saving Methods (Wolfgang Hannover), July 2001.
26. GTZ, Preparation of a Pilot Market Information Service for Cotton Marketing on Goverorate Level, July 1997.

27. EPIQ, Reducing Mismatch of Irrigation Deliveries, Phase I: Pilot Program, December 2000 (#33) (Larry G. King, et. al.)
28. CATGO, Weekly Reports and Website.
29. CATGO, Technical Gazette, July 2000.
30. ALCOTEXA, Weekly Reports and Website.
31. ALCOTEXA, The Egyptian Cotton Gazette, #116, April 2001.
32. MALR/EAS, Income and Cost Data, 1999/00.
33. MALR/EAS, Situation and Outlook Reports, various, 1997/98 through 2000/01.
34. MALR/EAS, Agricultural Statistics, various semi-annual reports.
35. MALR/EAS, Special Studies, Agricultural Policy Analysis Unit, various.
36. MALR/EAS, Website.